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10/696,474	10/29/2003	Carlo Filippo Ratti	D-22	6969

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EXAMINER	
NEWMAN, MICHAEL A	
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2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/696,474	RATTI ET AL.	
	Examiner	Art Unit	
	Michael A. Newman	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-17 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-17 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 29 October 2003 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

2. Applicant is advised that should claims 2 and 3 be found allowable, claims 8 and 9 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29

USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 3 and 9 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 4 of U.S. Patent No. 7,181,363. Although the conflicting claims are not identical, they are not patentably distinct from each other because it is well known in the art to carry out a process once given an apparatus designed to and capable of performing such a process.

5. Claim 4 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 6 of U.S. Patent No. 7,181,363. Although the conflicting claims are not identical, they are not patentably distinct from each other because it is well known in the art to carry out a process once given an apparatus designed to and capable of performing such a process.

6. Claims 14 and 16 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 7,181,363. Although the conflicting claims are not identical, they are not patentably distinct from each other because the means for carrying out the steps in the apparatus claimed in the conflicting patent are equivalent to the apparatus elements of the instant claims 14 and 16 as evidenced by the specification of the conflicting patent.

7. Claim 7 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 24 of U.S. Patent No. 7,181,362. Although the conflicting claims are not identical, they are not patentably distinct from each other because it would have been obvious to one of ordinary skill in the art that in order to detect the extent to which light is attenuated, as required in the instant claim 7, it would be necessary to first transmit light (which is electromagnetic energy) through the translucent material. Furthermore, a "bed" of translucent beads is clearly an aggregation of translucent beads.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Inami et al. (U.S. Patent No. 6,341,869).

a. Regarding claims 1 and 13, Inami teaches a method and apparatus for evaluating a three dimensional array of data values comprising, in combination, a manually manipulable physical object which defines a surface whose shape or position may be altered **(Fig. 2 element 11A – Col. 6 lines 39 – 50 and Col. 7 lines 18 – 26) [Note that by manipulating the screen, a new image is projected onto it]**, a position sensor for generating position data specifying the

geometry of said surface **(Fig. 2 elements SE1 and SE2 – Col. 8 lines 17 – 19)**, a processor for comparing said three dimensional array of data values with said position data to identify selected ones of said data values which have positions in said array that correspond to the geometry of said surface **(Fig. 2 element 13A – Col. 8 lines 19 – 23 and Col. 7 lines 15 – 18)**, and a projector for illuminating said surface of said physical object with an image representative of said selected ones of said data values **(Fig. 2 element 14A)**.

b. Regarding claims 2, 3, 8, 9, 14, 15 and 16, Inami teaches that said physical object is constructed of a material which forms a surface whose geometry varies when said object is manually manipulated (and retains its shape after being deformed) and upon which an image may be projected and viewed by a user **(Fig. 2 element 11A – Col. 51 – 53)**.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 4, 5, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inami et al. (U.S. Patent No. 6,341,869) in view of Pryor (U.S. Patent No. 5,892,352). Hereinafter referred to as Inami and Pryor respectively.

a. Regarding claim 4, Inami teaches all the limitations of the independent claim 1 as set forth in the 102 rejection of claim 1 above. However, Inami uses a mechanical location and deformation detection sensors **(Inami Fig. 2 elements SE1, S2 and 18A respectively)**. Inami **fails to teach** that the position sensor is a laser scanner. **Pertaining to the same field of endeavor, Pryor teaches a user-interactive screen in which the screen deformation is measured by monitoring the displacement of scanned laser spots (Pryor Col. 27 lines 1 – 6). Therefore, it would have been obvious to one of ordinary skill in the art to monitor the movement and shape of the Inami's screen by monitoring the deformation of a scanned laser projection with a camera, as taught by Pryor, thereby replacing Inami's mechanical components in order to enjoy a reduction in weight, manufacturing material and maintenance costs associated with mechanical fatigue common in joints.**

b. Regarding claims 5, 6 and 7, Inami teaches all the limitations of the independent claim 1 as set forth in the 102 rejection of claim 1 above. Inami further teaches that the screen contains glass beads **(Inami Col. 6 lines 53 – 55)**. However, **Inami fails to teach** that the position sensor measures the

position of said surface by measuring the extent to which light is attenuated when passing through said translucent material to reach said surface. **Pertaining to the same field of endeavor, Pryor teaches a user-interactive screen in which the position of the screen deformation triggered by user-force is monitored by (1) projecting light across the screen's thickness, (2) using a camera system to locate the change from light to dark (or vice-versa) caused by variation in thickness of the screen (Pryor Col. 32 lines 41 – 50). Therefore, it would have been obvious to one of ordinary skill in the art to monitor the location of Inami's screen surface by monitoring changes in the screen's light conductance, as taught by Pryor, thereby eliminating the need for Inami's mechanical components and enjoying a reduction in weight, manufacturing material and maintenance costs associated with mechanical fatigue common in joints.**

13. Claims 1, 2, 3, 4, 8, 9, 10, 11, 12, 13, 14, 15, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al. (U.S. Patent No. 6,259,815) in view of Machtig (U.S. Patent No. 5,221,937). Hereinafter referred to as Anderson and Machtig respectively.

a. Regarding claims 1 and 13, Anderson teaches a method and apparatus for evaluating a three dimensional array of data values comprising, in combination, a manually manipulable physical object which defines a surface whose shape or position may be altered **(Anderson Fig. 1a element 101, Col. 2**

lines 31 – 32), a position sensor for generating position data specifying the geometry of said surface **(Anderson Fig. 1a elements 120 and 130 – Col. 2 lines 43 – 47)**, a processor for comparing said three dimensional array of data values with said position data to identify selected ones of said data values which have positions in said array that correspond to the geometry of said surface **(Anderson Fig. 1a element 140 and 150 – Col. 2 lines 49 – 50)**. However, Anderson **fails to teach** a projector for illuminating said surface of said physical object with an image representative of said selected ones of said data values. **Pertaining to the same field of endeavor, Machtig teaches a system to create life-like mannequins including a projector assisted sculpture stand (Machtig Fig. 2A) in which a previously recorded image of a model/actor is projected onto a quantity of clay to aid a user of any skill in refining the clay face (Machtig Col. 9 lines 1 – 26 and lines 48 – 51). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add Machtig's projector to Anderson's 3D clay modeling system such that once the rough 3D object was matched with a template in Anderson's database, the template would be projected onto the clay object to assist the user in improving, refining or even painting it.**

b. Regarding claims 2, 3, 8, 9 and 14, 15, 16, Anderson in view of Machtig teach all the limitations of the independent claims 1 and 13, respectively, as set forth in the 103 rejection of claims 1 and 13 above. Anderson further teaches that said physical object is constructed of a material which forms a surface

whose geometry varies when said object is manually manipulated (and retains its shape after being deformed) and upon which an image may be projected and viewed by a user **(Anderson Col. 2 lines 32 – 35)**.

c. Regarding claim 4, Anderson in view of Machtig teach all the limitations of the independent claim 1, as set forth in the 103 rejection of claim 1 above. Anderson further teaches that the position sensor is a laser scanner **(Anderson Col. 3 lines 8 – 12)**.

d. Regarding claims 10 and 17, Anderson in view of Machtig teach all the limitations of the independent claims 1 and 13, respectively, as set forth in the 103 rejection of claims 1 and 13 above. Anderson further teaches that the physical object comprises an aggregation of smaller movable objects which may be individually moved to alter the shape or position of said surface **(Anderson Col. 2 lines 35 – 38) [Note that in Fig. 1b, some of the clay models have "extremities" that can be easily manipulated to change the shape]**.

e. Regarding claim 11, Anderson in view of Machtig teach all the limitations of the dependent claim 10, as set forth in the 103 rejection of claim 10 above. Anderson further teaches that the smaller objects comprise rectilinear blocks of material **(Anderson Fig. 1b, 3rd model from the left on the top row)**.

f. Regarding claim 12, Anderson in view of Machtig teach all the limitations of the dependent claim 10, as set forth in the 103 rejection of claim 10 above. Anderson further teaches that the smaller objects comprise substantially

spherical beads **(Anderson Fig. 1b, 1st model from the left on the bottom row)**.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Tsao (U.S. Patent No. 6,765,566) teaches a 3D volumetric display and interface in which a camera-monitored area allows the user to "reach into" a projected image and manipulated using hand movements.

b. Crampton (U.S. Patent No. 6,611,617) teaches a 3D-model generating system including laser-striping techniques.

c. Blinsted et al. (U.S. Patent No. 6,554,431) teaches a projection apparatus on which a plurality of alignment markers are physically placed to allow the projector to compensate for location and shape changes of the projection surface.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Newman whose telephone number is (571) 270-3016. The examiner can normally be reached on Mon - Thurs from 9:30am to 6:30pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir A. Ahmed can be reached on (571)272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

M.A.N.

SAMIR AHMED
PRIMARY EXAMINER